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ABSTRACT

This document is designed to be a "state of the arts" in education for environmental occupations in Illinois. This document contains three major parts. The first part deals with definitions and basic concepts relating to education for environmental occupations. The second part lists existing and emerging occupations which were considered by the task force to be related to the maintenance and improvement of our natural environment. The third lists existing educational programs in Illinois community colleges, area vocational centers, and other agencies which provide training for entry level skills in selected environmental occupations. It is hoped that this document will be of use to career counselors, occupational instructors, teacher-training institutions, learners interested in entering and progressing with an environmental occupation, and others interested in enhancing the quality and scope of occupational education in Illinois. (Author)

ED101248

Preliminary Edition

HANDBOOK on CAREERS RELATING to the ENVIRONMENT

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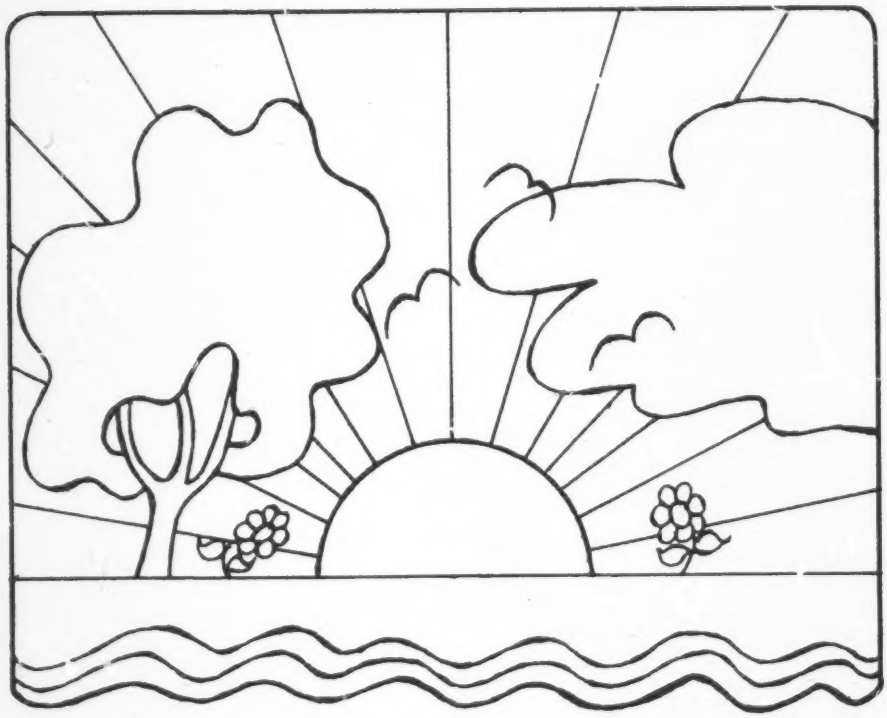

Prepared by the
Illinois Task force for Environmental Occupations in cooperation with the Division of Vocational and Technical Education, State of Illinois

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State of Illinois

Office of the Superintendent of Public Instruction

DIVISION OF VOCATIONAL AND TECHNICAL EDUCATION

1035 OUTER PARK DRIVE, SUITE 201

SPRINGFIELD 62706

AREA CODE 217 525-4871

MICHAEL J. BAKALIS, EXECUTIVE OFFICER
SUPERINTENDENT OF PUBLIC INSTRUCTION

SHERWOOD DEES, DIRECTOR
TELEPHONE 525-4870

FOREWORD

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During the past few years, the Illinois Division of Vocational and Technical Education has exerted considerable effort in training for occupations related to the environment. Examples of these efforts include (1) a statewide task force to identify existing and emerging occupations relating to the environment, and to identify existing training programs in Illinois, (2) a task force to determine manpower supply and demand in specified environmental occupations, and (3) the design, development, and implementation of two teacher-training programs for environmental occupations on the secondary and post-secondary levels.

The following document has been prepared by the first of the above efforts, i.e., the statewide task force relating to specific occupations and training programs thereof in Illinois. This product is a result of the second consecutive year of this task force which has been conducted by Dr. Alvin Jacobson and his staff at Illinois State University.

This document is designed to be a "state of the arts" in education for environmental occupations in Illinois. This document contains three major parts. The first part deals with definitions and basic concepts relating to education for environmental occupations. The second part lists existing and emerging occupations which were considered by the task force to be related to the maintenance and improvement of our natural environment. The third lists existing educational programs in Illinois Community Colleges, Area Vocational Centers, and other agencies which provide training for entry level skills in selected environmental occupations. It is hoped that this document will be of use to career counselors, occupational instructors, teacher-training institutions, learners interested in entering and progressing with an environmental occupation, and others interested in enhancing the quality and scope of occupational education in Illinois.

Sincerely,

Sherwood Dees

Sherwood Dees
Director

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ABSTRACT

The Environmental Careers Project has been a 2-year cooperative undertaking between Illinois State University and the Division of Vocational and Technical Education of Office of the Superintendent of Public Instruction of the State of Illinois. The two primary objectives of the project during the first year were 1) to organize a State-Wide Task Force composed of representatives of government agencies, academic institutions, business and industry, and other groups concerned with environmental quality and 2) with the advice and counsel of this Task Force, identify existing and emerging occupations which relate directly and indirectly to environmental quality with implications for occupational training programs at the "entry" or technician level. These two objectives were accomplished as proposed

During the second year the objectives have been 1) to refine and finalize the list of occupations in the previous project, 2) to continue the Task Force, however, broaden its representation to include representatives from agriculture, conservation, other governmental agencies and educational institutions, 3) to assist, by advisement and counsel, the DVTE project directors of the teacher training programs at Chicago State and Southern Illinois Universities, and 4) to complete and publish a document on environmentally-related programs. This would be a "state of the arts" document providing up-to-the-minute information on all facets of the problem.

With the publication of this final document the project has been completed. The Project Staff, with the advice and counsel of the Task Force, has completed a listing of Career Opportunities in Occupations Relating To or Affecting the Environment under 47 general headings with cross references. Job titles are listed under each heading and may be further identified in one or more of the annotated references. This identification includes career descriptions, education and training, and other requirements to become employed at the entry level.

A listing of the current environmental career training programs in the State of Illinois, or available to Illinois residents, has been completed. This includes those currently made available by Illinois Community Colleges, Area Vocational Centers, state and federal governmental agencies, professional societies, high schools and industrial corporations.

With the advice and counsel of the Task Force, the final document has been completed in the form of a Handbook

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on Environmental Careers with the recommendation that it be designed for use by high school and community college counselors and students, environmental career teachers and others interested in careers pertaining to or affecting the environment.

One of the most gratifying results of this Project has been the opportunity of working with a number of individuals representing a wide cross-section of organizations and agencies having an interest in the quality of the environment. It has also provided an opportunity for the cross-fertilization of ideas between representatives of educational institutions and other agencies and organizations that are equally interested in the adequate training of personnel in occupations related to the environment.

The Task Force recommends that the Handbook on Environmental Careers be evaluated by determining whether it has been found to be useful to the high school and community college counselors and students, environmental careers teachers and seminar leaders. In addition, it is also recommended that an up-to-date list of training programs be maintained and made available to counselors throughout the State of Illinois.

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TABLE OF CONTENTS

	Page
Letter of Acknowledgments	1
Abstract	2
Table of Contents	4
Introduction	5
I. Purpose of Handbook	5
II. Definition of an Environmental Occupation	5
III. Entry Level Careers and Skills	5
IV. Opportunities in Environmental Careers	6
Environmental Health	7
Environmental Protection	7
Environmental Planning and Design	8
Use of Conservation of Natural and Urban Resources	8
Environmental Education and Communications	9
V. How to Use This Handbook	10
Careers Relating To The Environment	12
Career Opportunities in Occupations Relating To Or Affecting The Environment	
Career Opportunities Relating To The Environment	14
Training Programs	
I. Illinois Community Colleges	26
II. Area Vocational Centers	33
III. Other Environmental Career Programs	38
Appendices	
I. Membership of State-Wide Task Force On Occupations Relating To The Environment	44
II. Project Staff	47
III. Bibliography	48

INTRODUCTION

I Purpose of Handbook

This Handbook has been compiled by the Illinois Task Force on Occupations Relating to the Environment, and is designed to acquaint primarily the high school and community college counselor and student with present and emerging environmental career opportunities. Its further purpose is to provide an index of community (junior) colleges and area vocational centers which offer training programs for many of the listed occupational opportunities.

II Definition of an Environmental Occupation

Environmental occupations are defined in the broadest sense as being those jobs directly relating to the use, control, and management of the available materials, resources we presently have, the conservation of their use, the recycling of any used portions, and the repair of any severe damage already done to our environment.

III Entry Level Careers and Skills

This project is concerned with careers at the entry level only. Entry level "qualification" depends upon the mix between academic training and experience required to perform the job, the degree to which employers are willing to provide post-employment training, the number of job-specific skills incorporated in the training program, and the amount of actual on-the-job training offered by the pre-service program.

In industrial settings, a special situation exists presently. Most individuals employed by industry in environmentally-related non-professional positions are not hired specifically for these positions, but promoted or transferred from other areas within the plant. There are two reasons for this:

1. Many industrial jobs in environmentally-related areas are union jobs. This is particularly true for operators, such as industrial waste water treatment plant operators. Union rules, in general, require that the jobs be filled from union ranks on a seniority rather than pre-employment skills or knowledge basis.

2. Industries seem to prefer a flexible work force. For example, a waste water treatment plant operator should be able, when necessary, to fill in on the production line.

While the need for highly qualified skilled technicians in some environmentally-related jobs overcome the two factors listed above, presently it would seem that most industrial environmentally-related jobs cannot be considered entry level positions. A large percentage of industry's training needs now and in the future in environmentally-related areas would seem to be in the field of in-service training rather than pre-service training. The need for in-service training, however, is great. This training can be provided by High School and Community College vocational-technical programs as a supplement to their prime orientation toward pre-service training.

When considering emerging occupations, many jobs which are presently not entry level jobs will eventually emerge as entry level jobs once the specific tasks involved become clearly defined and the occupation becomes more well established. For example, many individuals presently working as water pollution control technicians, were not trained specifically as such, but moved into the field from other related areas.

IV Opportunities in Environmental Careers

All occupations relate in some manner to the environment, either through an objective to protect or control some aspect or through the use and management of resources. Environmentally-related occupations are considered to be occupations which are primarily directed to some aspect of the environment. Some occupations which may not be generally considered as environmental occupations at all may have considerable impact on environmental quality, e.g., farming or mining. Because of their great potential impact many of these types of occupations are included. General criteria that have been used for evaluating occupations to determine their environmental relatedness are:

a. The degree to which the maintenance or enhancement of the environment was a certain factor in the job; or
b. The kind and amount of training in environmental areas which was required to perform the job.

Five general occupational areas have been identified; (1) environmental health, (2) environmental protection, (3) environmental planning and design, (4) use and management of natural and urban resources, (5) environmental education and communication.

Environmental Health

Men and women who are environmental health technicians form part of a team responsible for maintaining the general health and welfare of the public. Both in government and in private industry, they may be required to perform duties in one or more of the following areas of environmental health: control and prevention of water pollution, thereby providing clean water for domestic, industrial and recreational purposes; identify and control of sources of air pollution; the measures necessary to minimize the risks involved in the use of nuclear energy; problems associated with refuse disposal; contamination and adulteration of food during processing and handling; safe and proper use of pesticides; ensuring safe and sanitary public swimming places; providing adequate and healthful housing, both temporary and permanent, for urban, suburban, and rural residents.

Two areas within environmental health seem to be developing. These are (1) the urban-oriented environmental health workers, and (2) the occupational health and safety technicians. The first category includes technicians trained and qualified to work in the larger city health departments. This area is particularly significant, therefore, because of the potential opportunities for employment of urban-centered minority groups. In addition to health departments, employment maybe obtained with urban renewal agencies and housing departments.

The second area within environmental health which seems to be emerging is the area of occupational health and safety. At the present time only a minimum number of jobs are available. However, stringent occupational health and safety legislation has recently been passed at both the federal and state levels. To date, federal and state agencies have employed primarily highly qualified professional level individuals on their regulatory staffs. State agencies and industries, however, have shown an interest in employing technician level individuals. As one of the major industrial states of the Nation, it can be anticipated that the next five to ten years will see increasing requirements of occupational health and safety technicians.

Environmental Protection

This field is increasing as new environmental laws are being enacted. Governmental agencies and industry are being required to monitor and document what is happening to various components of the environment. The increasing areas of concern are in the field of air, water, solid wastes, noise and land use. Technicians are utilized in a variety

of ways in environmental protection programs. The application of such skills includes, but is not limited to inspections, surveys, investigations, evaluations and operation of facilities. Specific tasks may include obtaining appropriate samples of air and water and assisting in tests to determine quality; operating, or assisting in the operation of water and wastewater treatment plants and solid waste disposal facilities, and inspection and evaluation to determine compliance with laws and regulations.

Administrative organizations and units which employ technicians are state and local air pollution control organizations, water purification plants, wastewater treatment plants, solid waste collection and disposal units, radiation protection units, consulting firms, and a variety of business and industrial firms concerned with environmental controls.

Environmental Planning and Design

This is a field which has been almost entirely occupied by professionally trained people, although some technicians have always been employed. Greater use of technicians appears likely, although a great deal more investigation is needed as to numbers of technician-level individuals required. Graduates of technical programs are employed as assistants to engineers, contractors, consulting firms in the planning, design, and construction of highways, airports, harbor facilities, irrigation systems, transportation systems, skyscrapers, bridges, dams, tunnels, water and waste water treatment facilities. As with environmental health, newly emerging sub-professional roles have the potential of significant job opportunities in the inner cities.

Use and Conservation of Natural and Urban Resources

Opportunities for technicians are opening up. For example, the U.S. Office of Education has recently developed a vocational technician program to train forestry technicians. While soil conservation, mineral resources conservation, wildlife management, and other sub-categories in this area are in themselves quite diverse, it appears that they have a sufficiently common base to allow the development of educational training programs in natural resource conservation which would perhaps provide for options in one of the narrower areas. An individual would then train not as a forestry technician, but as a resource conservation

technician with an option in forestry. If later he could not find a job in forestry or if he found forestry not to his liking, he could enter a related field with a minimum of training.

Opportunities in the urban areas are urban horticulture, urban forestry, urban floriculture, recreation-education programs centered at park facilities.

Environmental Education and Communications

The need for environmental education at all levels is quickly being recognized by educators. The need requires that the student get out of the classroom and into the environment--whether his environment is a rural countryside or an urban ghetto. A need has been shown for community environmental specialists who can assist the school teacher in relating to the local environment. The Open Lands Project in Chicago has had a great deal of success in using non-degree people as community environmental specialists.

Environmental education programs have extended beyond the school system. Parks and recreational areas and museums are greatly expanding their educational activities in order to make their resources better available to the schools and to the general public. Interpretative naturalists and public recreational specialists often can be sub-professional jobs and offer rapidly expanding opportunities for graduates of vocational technical programs.

Several factors should be considered before undertaking courses in a particular field or seeking employment.

1. Do you want a career where you spend your time behind a desk, in a factory, or working outdoors?

2. Do you work well with people, or do you prfer to work by yourself?

3. Do you like to work with equipment or with facts and figures?

4. Can you improve yourself on the job?

The answers to these questions will help you decide what types of careers for which you will be best suited. The use of this Handbook will assist you in making this important decision.

V How to Use This Handbook

In utilizing this Handbook, the user will find a broad range of occupational career listings. These are grouped under 49 generalized headings. The majority may be considered to be at the "entry" level, that is, a student with proper skills may be considered for these jobs. However, others may require further educational preparation or skills.

It is for the user to determine the suitability of the job title or career area to his or her background and interests. Career descriptions and general requirements for the majority of listings may be found in the following references. To locate an occupation or industry in the following reference books, see the Table Of Contents or The Alphabetical Index.

1. Career Opportunities: Ecology, Conservation, and Environmental Control. J.G. Ferguson Publishing Co., Chicago, Illinois, 1969. $6.95 211 p. A survey of two-year post high school programs related to Ecology, Conservation and Environmental Control.

2. Career Opportunities: Agriculture, Forestry and Oceanographic Technicians. J.G. Ferguson Publishing Co., 1969. 384 p.

3. Ferguson's Guide to Two-Year College Programs For Technicians and Specialists. J.G. Ferguson Co., 1971. Chicago, Illinois. $6.95. 390 p. 130 post high school occupational programs--what they are and where they are taught. AGRICULTURAL, FORESTRY, and OCEANOGRAPHY TECHNICIANS; COMMUNITY SERVICE and RELATED SPECIALISTS: ENGINEERING AND HEALTH TECHNICIANS; MARKETING, BUSINESS AND OFFICE SPECIALITIES.

4. An Inventory of Environmental Management Occupational Descriptions. Department of health, Education and Welfare: Environmental Health Service and the Environmental Control Administration. Contract No. C.P.E.-R-70-0033. 115p. Serendipity, Inc., Eastern Operations Division, 2001 Jefferson David Highway, Suite 701, Arlington, Virginia 22202. The publication provides a comprehensive set of titles and descriptions for environmental management occupations.

5. Dictionary of Water and Water Pollution Control Occupations. Office of Water Programs. Manpower Development Staff. Environmental Protection Agency, March 1972. Washington D.C. 20406.
Occupations extracted from the Dictionary of Occupational Titles. The source lists occupational titles along with job description and D.O.T. number.

6. Dictionary of Occupational Titles. Bureau of Employment Security, Manpower Administration. Vol. I & II, 1965. $6.95 each. Approx. 700 p. U.S. Department of Labor, U.S. Government Printing Office, Washington D.C. 20402.
An extensive listing of Occupational Titles and job descriptions.

7. Occupational Outlook Handbook. 1972-73 Edition. U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 1700. $6.25, 880 p. Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402.
The Handbook discusses the nature of work in over 800 occupations, as well as earnings, job prospects during the 1970's, and education and training requirements.

If the user is interested in one or more occupations, he or she should look to the Handbook's Indexes of Community Colleges and Area Vocational Centers. These indicate environmentally-related areas of study being offered and the user may determine which programs most nearly approximate his or her career goals. These agencies may be contacted for further information.

The Office of the Superintendent of Public Instruction, the Division of Vocational and Technical Education, (D.V.T.E.), State of Illinois, 1035 Outer Park Drive, Springfield, Ill. 62706, has additional information available concerning career requirements, training and education, and current and projected manpower needs.

CAREERS RELATING TO THE ENVIRONMENT

A listing follows of approximately 50 subject areas and the entry-level occupations which have been identified within each of these areas.

The Task Force recognizes that there are numerous ways in which the careers can be classified, such as:

1. The degree to which this occupation is goods-centered or service-centered;

2. The indoor or outdoor nature of the activities;

3. The element of man's environment to which they are directed: the water, air, land, etc.;

4. A classification in terms of task analysis: those careers concerned with monitoring, planning, protection, conservation, education, health, etc.

In the interest of maximum utility a cross-referenced alphabetical listing of careers was developed.

This list of entry-level careers was compiled from the references listed in the annotated bibliography. The list was finalized in accordance with recommendations of the Task Force.

It is recognized that a number of entry-level occupations may have broad-spectrum application. For instance, ownership, sales representation, heavy equipment operation, and clerical positions are an integral part of most if not all of these occupational categories. Because of the general nature of the training required, these occupational titles were omitted from this listing.

CAREER OPPORTUNITIES IN OCCUPATIONS RELATING TO OR AFFECTING THE ENVIRONMENT

(For specific jobs, see the following pages)

1. AGRICULTURE
2. AGRICULTURAL CHEMICALS
3. AGRICULTURAL EQUIPMENT
4. AIR POLLUTION CONTROL
5. ANIMAL SCIENCE
6. ARBORICULTURE
7. CIVIL (PUBLIC WORKS) TECHNOLOGY
8. COMMUNITY PLANNING AND DEVELOPMENT
9. CONSERVATION TECHNOLOGY
10. DAIRY PRODUCTION
11. ENVIRONMENTAL CONTROL
12. ENVIRONMENTAL HEALTH
13. FARM CROP PRODUCTION
14. FISH CULTURE
15. FLORICULTURE
16. FOOD PROCESSING
17. FOREST TECHNOLOGY
18. LABORATORY ANIMAL CARE
19. LIVESTOCK PRODUCTION
20. LANDSCAPE DEVELOPMENT
21. MARINE LIFE
22. NATURAL RESOURCES CONSERVATION
23. NOISE POLLUTION CONTROL
24. NUCLEAR ENERGY
25. NURSERY OPERATOR
26. OCEAN FISHING
27. OCEANOGRAPHY
28. OCCUPATIONAL HEALTH AND SAFETY
29. ORCHARD and VINEYARD
30. ORNAMENTAL HORTICULTURE
31. PARK and RECREATIONAL LAND MANAGEMENT
32. PESTICIDE TECHNOLOGY
33. PHYSICAL OCEANOGRAPHY
34. PLANT SCIENCE
35. POULTRY PRODUCTION
36. SANITATION
37. SOIL RECLAMATION and CONSERVATION
38. SOLID WASTE MANAGEMENT
39. STRIP MINE RECLAMATION
40. TURFGRASS MANAGEMENT
41. URBAN PLANNING
42. VECTOR CONTROL
43. WATER AND WATER POLLUTION CONTROL
44. WASTEWATER CONTROL
45. WATER POLLUTION CONTROL
46. WATER SUPPLY CONTROL
47. WILDLIFE CONSERVATION

Career Opportunities Relating to the Environment

1. AGRICULTURE

   (See AGRICULTURAL CHEMICALS, AGRICULTURAL EQUIPMENT, ANIMAL SCIENCE, DAIRY PRODUCTION, FARM CROP PRODUCTION, LABORATORY ANIMAL CARE, LIVESTOCK PRODUCTION, NATURAL RESOURCES CONSERVATION, ORCHARD AND VINEYARD OPERATION, PESTICIDE MANAGEMENT, PLANT SCIENCE, POULTRY PRODUCTION, SOIL RECLAMATION AND CONSERVATION).

2. AGRICULTURAL CHEMICALS

   Custom Applicator Technician
   Farm Chemicals Specialist
   Federal or State Regulatory Quarantine Inspector
   Fertilizer Formulation Technician
   Fertilizer Product Salesman
   Field Application Specialist
   Field Research Technician
   Formulations Specialist
   Laboratory Research Technician
   Pesticide Formulation Technician
   Pesticide Product Salesman
   Quality Control Specialist
   Quality Control Technician

3. AGRICULTURAL EQUIPMENT

   Field Service Representative
   On-Farm Machinery Manager
   Research Technicians
   Retail Farm Equipment Manager
   Systems Specialist

4. AIR POLLUTION CONTROL

   Air Pollution Control Aide
   Air Pollution Control Chemist
   Air Pollution Control Engineer
   Air Pollution Control Inspector
   Air Pollution Control Meteorologist
   Air Pollution Control Technician
   Auto Emission Control Technician

5. ANIMAL SCIENCE

   (See DAIRY PRODUCTION, LABORATORY ANIMAL CARE, LIVESTOCK PRODUCTION, POULTRY PRODUCTION, and VECTOR CONTROL).

6. ARBORICULTURE

Arboretum or Botanical Garden Foreman
City Forester
Junior Arborist
Park Foreman
Tree Expert
Tree Pruner or Trimmer
Tree Service Proprietor
Tree Supply Salesman
Tree Surgeon

7. CIVIL (PUBLIC WORKS) TECHNOLOGY

(See URBAN PLANNING).

City or County Building Inspector
City of County Engineer Assistant
Civil Engineer Technician
Construction Superintendent
Construction Technician
Contractor
Draftsman
Highway Technician
Irrigation Systems Designer
Licensed Land Surveyor
Materials Technician
Municipal Designer Assistant
Photogrammetric Technician
Project or Resident Engineer Assistant
Rail or Waterway Technician
Research Engineering Technician
Sales Engineering Technician
Structural Engineering Technician
Supervisor of a Testing Laboratory
Topographic Technician
Traffic Engineering Assistant
Water Resources Technician

8. COMMUNITY PLANNING and DEVELOPMENT

(See URBAN PLANNING, also CIVIL (PUBLIC WORKS) TECHNOLOGY).

9. CONSERVATION TECHNOLOGY

(See FORESTRY, NATURAL RESOURCES, PARK and RECREATIONAL LAND MANAGEMENT, SOIL RECLAMATION, and WILDLIFE CONSERVATION).

Archaeological Technician
Conservation Inspector
Ranger Aide
Site Interpretive Specialist

10. DAIRY PRODUCTION

Dairy Equipment Sales Representative
Dairy Farm Manager
Dairy Herd Improvement Supervisor
Feed Company Sales Representatives
Herdsman
Milk Tester
Veterinarian Assistant

11. ENVIRONMENTAL CONTROL

(See AIR POLLUTION, ENVIRONMENTAL HEALTH, NOISE POLLUTION CONTROL, SOLID WASTE MANAGEMENT, WASTE-WATER CONTROL, WATER SUPPLY CONTROL).

12. ENVIRONMENTAL HEALTH

Cytotechnologist
Certified Laboratory Technician
Dairy Farm and Milk Plant Inspector
Food Products Inspector
Health Engineering Technician
Health Laboratory Technician
Histologic Technician
Licensed Practical Nurse
Medical Laboratory Technician
Nuclear Medicine Technician
Nurses Aide
Quarentine Inspector
Radiation Therapy Technician
Registered Nurse
Safety Technician
Sanitarian or Environmentalist
Sanitary Inspector
Sewage Treatment Plant Operator
Shellfish Harvesting and Processing Plant Inspector
Water Treatment Plant Operator

13. FARM CROP PRODUCTION

Agricultural Inspector
Cooperative Manager
Custom Farm Operator
Farm Foreman or Manager
Farm Machinery Foreman
Farm Supply Salesman
Field Man
Peace Corps Volunteer
Pest Control Assistant
Research Control Assistant
Rodent Control Assistant
Seed Processing Foreman
Soil Conservation Aide
Technical Farm Worker

14. FISH CULTURE

(See OCEAN FISHING, MARINE LIFE).

Experimental Biology Technician
Fish Hatchery Assistant
Fish Hatchery Manager (or Superintendent)
Fish Wildlife Conservation Technician
Fisheries Management Specialist
Senior Conservation Technician

15. FLORICULTURE

Assistant Flower Grower
Assistant Flower Shop Manager
Assistant Garden Center Manager
Assistant Greenhouse Manager
Assistant Systems Operator
Floral Designer
Flower Salesperson
Florist Center Manager
Greenhouse Proprietor
Retail Florist
Wholesale Florist Assistant

16. FOOD PROCESSING

Agricultural and Markets Food Inspector
Agriculture and Markets Dairy Inspector
Agriculture and Markets Meat Inspector
Assistant Food Plant Sanitarian
Assistant Production Manager
Bacteriological Laboratory Technician
Environmental Health Technician
Fieldman
Processing Equipment
Product Development Technician
Quality Control Technician
Research Technician

17. FOREST TECHNOLOGY

Assistant Logging Superintendent
Biological Aide
Fish and Game Preserve Manager
Forest Fire Control Technician
Forest Recreation Technician
Forester
Information and Education Technician
Refuge Foreman
Sawmill Manager
Survey Assistant
Technical Research Assistant
Timber Cruiser
Timber Stand Improvement Foreman
Tree Nursery Management Assistant
Wildlife Technician

18. LABORATORY ANIMAL CARE

Animal Care Technician
Animal Hospital Supervisor
Animal Producer
Veterinarian Assistant

19. LIVESTOCK PRODUCTION

(See ANIMAL SCIENCE, DAIRY PRODUCTION, POULTRY PRODUCTION).

Feed Lot Manager
Foreman, Livestock Breeding Farm
Livestock Rancher
Preventive Medicine Assistant
Veterinarian Assistant

20. LANDSCAPE DEVELOPMENT

Cemetery or Memorial Park Superintendent
Landscape Construction Foreman
Landscape Consultant
Landscape Designer
Landscape Gardener
Landscape Maintenance Businessman
Landscape Maintenance Foreman
Landscape Planting Foreman
Parkway Maintenance Supervisor
Parkway Superintendent
Pest Controller
Salesman for Horticultural Supplies and Equipment

21. MARINE LIFE

(See OCEAN FISHING, FISH CULTURE).

Aquaculture Technician
Aquarist
Estuarine Research Assistant
Fish Processing Technician
Marine Biological Technician
Marine Pharmacognosy Technician
Marine Pollution Research Assistant

22. NATURAL RESOURCES CONSERVATION

(See CONSERVATION).

23. NOISE POLLUTION CONTROL

Acoustical Technician
Acoustical Design Technician
Hearing Tester
Hearing Protective Device Consultant
Hearing Aid Sales and Service Technician

24. NUCLEAR ENERGY

Accelerator Safety Technician
Civil Defense Radiation Assistant
Counting Laboratory Technician
Environmental Survey Technician
Food and Grain Specialist
Health Physics Technician
Hot Cell Operator
Industrial Radiography Technician
Instrument Design Technician
Nuclear Medicine Technician
Physical Radiologist
Quality Control Specialist
Radiation Monitor
Radiation Therapy Technician
Radioactive Waste Analyst
Radiobiology Technician
Radiochemistry Technician
Reactor Safety Technician
Soils Evaluation Technician
Well Logging Technician
X-Ray Calibration Technician

25. NURSERY OPERATOR

Assistant Nursery Manager
Garden Center Manager
Grower
Horticultural Inspector
Horticulturist
Landscape Nurseryman
Nursery Foreman
Nursery Manager
Nurseryman
Planning Foreman
Plantsman
Propagator
Storage Manager
Woody Plant Specialist

26. OCEAN FISHING

Boatswain
Engineering Technician
Fish Detection Technician
Food Fisheries Technician
Industrial Fisheries Technician
Laboratory Technician
Navigator or Pilot
Nets and Gear Technician
Refrigeration Technician
Surveyor or Inspector
Vessel Maintenance Technician

27. OCEANOGRAPHY

(See FISH CULTURE, MARINE LIFE, and OCEAN FISHING).

28. OCCUPATIONAL HEALTH & SAFETY

Accident Prevention Technician
Building Inspector
Chemical Technician
Fire Inspector
Hazardous Materials Technician
Industrial Nurse
Protective Clothing & Equipment Representative
Radiation Monitor
Safety Inspector
Zoning Technician

29. ORCHARD and VINEYARD

Custom Farm Operator
Fruit Nursery Operator
Fruit, Nut, Berry, or Grape Grower
Fruit Processing Plant
Orchard Equipment or Supply Salesman
Orchard or Vineyard Foreman or Manager
Research Assistant
Spray Equipment Operator
Spray Materials Salesman

30. ORNAMENTAL HORTICULTURE

Assistant Flower Grower
Assistant Flower Shop Manager
Assistant Greenhouse Manager
Floral Designer
Florist Manager
Flower Salesman
Flower Shop Proprietor
Garden Center Manager
Greenhouse Manager
Greenhouse Proprietor
Retail Florist

31. PARK and RECREATIONAL LAND MANAGMENT

Conservation Aid Technician
Conservation Planner
Garden Center Technician
Golf Course Technician
Grounds Maintenance Technician
Interior Landscape Technician
Landscape Planner
Lawn Maintenance Technician
Park Information Technician
Park Supervisor
Park Technician
Research Technician
Turfgrass Technician

32. PESTICIDE TECHNOLOGY

Custom Applicator or Technician
Federal or State Regulatory Quarantine Inspector
Field Application Specialist
Field Research Technician
Laboratory Research Technician
Pesticide Formulation Technician
Pesticide Product Specialist
Quality Control Specialist

33. PHYSICAL OCEANOGRAPHY

Applied Research Technician
Deck Support Technician
Hydrographic Survey Technician
Limnological Laboratory
Marine Engineering Technician
Marine Products Salesman
Oceanographic Instrumentation Technician
Oceanographic Laboratory Technician
Scientific Support Party Chief
Underwater Technician
Water Pollution Technician

34. PLANT SCIENCE

(See ARBORICULTURE, FARM CROP PRODUCTION, HORTICULTURE, ORCHARD and VINEYARD, SOIL RECLAMATION and CONSERVATION, and TURFGRASS MANAGEMENT).

35. POULTRY PRODUCTION

Egg Candler
Egg Farmer
Hatchery Operator
Poultry Breeder
Poultry Grader
Poultry Husbandman
Poultry Inspector
Poultry Technician
Technical Advisor

36. SANITATION

(See ENVIRONMENTAL HEALTH, FOOD PROCESSING, SOLID WASTE MANAGEMENT, and VECTOR CONTROL).

37. SOIL RECLAMATION and CONSERVATION

Cartographic Survey Technician Aide
Cartographic Technician
Engineering Technician
Geodetic Technician
Meteorologic Tehnician
Physical Science Technician
Range Conservationist
Range Technician
Soil Conservation Technician
Surveying Technician

38. SOLID WASTE MANAGEMENT

Director of Solid Waste Disposal
Engineer Aide
Engineer Technician
Garbage Collection Foreman
Garbage Collector
Incinerator Foreman
Incinerator Operator
Landfill Disposal Assistant
Landfill Foreman
Scale Man
Solid Waste Management Assistant
Surveying Technician

39. STRIP MINE RECLAMATION

(See SOIL RECLAMATION and CONSERVATION).

40. TURFGRASS MANAGEMENT

Cemetery or Memorial Park Superintendent
Commercial Sod Grower
Estimator
Golf Course Construction Foreman or Contractor
Golf Course Superintendent
Grounds Custodian
Landscape Construction Foreman
Landscape Construction Worker
Landscape Contractor
Landscape Gardener
Park, Parkway, or Golf Course Foreman
Sod Salesman
Superintendent of Grounds
Turfgrass Consultant
Turfgrass Maintenance Foreman
Turfgrass Maintenance Service Owner
Turfgrass Research and Development Technician

41. URBAN PLANNING

(See CIVIL (PUBLIC WORKS) TECHNOLOGY)

Delineator of Planning Design Technician
Field Executive Assistant
Housing Inspector
Master Draftsman
Master or Senior Delineator
Planning Administrative Aide
Planning Associate
Planning Computer Programmer
Planning Draftsman or Cartographer
Planning Systems Analyst
Property Management Assistant
Research Assistant
Tenant Area Coordinator
Zoning Technician

42. VECTOR CONTROL

(See ENVIRONMENTAL HEALTH and PESTICIDE TECHNOLOGY).

Entomologist Technician
Field Research Technician
Insect Control Technician
Laboratory Research Technician
Pesticide Formulation Specialist
Rodent Control Technician

43. WATER AND WATER POLLUTION CONTROL

(See WASTEWATER CONTROL and WATER SUPPLY CONTROL).

44. WASTEWATER CONTROL

Applied Research and Development Technician
Backhoe Operator
Building and Grounds Superintendent
Control Technician
Design and Construction Technician
Engineer Assistant
Foreman, Pumping Station
General Foreman
Industrial Waste Inspector
Instrumentation Technician
Maintenance Assistant
Maintenance Foreman
Mechanical Maintenance Foreman
Plant Superintendent
Process Analyst
Regulatory Technician
Sanitary Inspector
Sewer Repairman
Sewer Repairman Foreman
Stationary Engineer
Treatment Assistant

45. WATER POLLUTION CONTROL

(See WASTEWATER CONTROL).

46. WATER SUPPLY CONTROL

Chemist Technician
Chief Filter Operator
Control Technician
Engineer Assistant
Filter Operator
Foreman, Pumping Station
General Foreman

Hydrant and Valve Setter
Lubrication-Equipment Maintenance Man
Mechanical Maintenance Assistant
Mechanical Maintenance Foreman
Meter Installer Assistant
Meter Installer
Meter Installer Foreman
Meter Repairman
Meter Repairman Foreman
Pipe Cleaning Machine Operator
Pipe Filter Foreman
Plant Superintendent
Pump Operator
Pump Serviceman
Pump Serviceman Foreman
Superintendent Building and Grounds
Treatment Plant Operator
Water Revenue Inspector
Watershed Tender
Well Driller
Well Driller Assistant

47. WILDLIFE CONSERVATION

Animal Aide
Game Protector or Warden
Interpretive Naturalist
Land Manager
Wildlife Aide
Wildlife and Conservation Research Aide

TRAINING PROGRAMS

I Illinois Community Colleges

The data used to formulate the following Environmental Curricula Inventory Charts of Illinois Community Colleges was derived from two main sources:

1. Questionnaires which were sent to each of the Illinois Public Community Colleges in order to access those educational programs oriented toward environmental occupations. An 85% response to these questionnaires was obtained.

2. "College Curriculum Directory of Illinois Public Community Colleges", published in the April, 1973, issue of The Community College Bulletin, a publication of the Illinois Junior College Board.

For further information on any programs contact the specific community college listed following the chart.

BEST COPY AVAILABLE

ILLINOIS COMMUNITY COLLEGE

ENVIRONMENTAL CURRICULA INVENTORY

	Belleville	Carl Sandburg	Central Y.M.C.A.	Chicago City College	Kennedy King	Loop	Malcolm X	Olive-Harvey	Southwest	Wilbur Wright	College of DuPage	College of Lake City	Danville	Elgin	Illinois Central	Illinois Eastern College	Lincoln Trail	Olney Central	Wabash Valley	Joliet	Kankakee	Kaskaskia	Kishwaukee	Lake Land	Lincoln Land	Moraine Valley	Oakton	Parkland	Prairie State	Rend Lake	Rock Valley	Shawnee	Southeastern, Ill.	East St. Louis	Triton Waubonsee	William Ramey	Harper
Agricultural Tech.		A				C						A							A	A	A	A														
Architectural Tech.	A	A	B			A	A	B	A	A	A	B			A		A					A		A	A		B		B	B	B	C		C	B		B
Construction Tech.		C									A	A									A	A			A			A						B	A		
Conservation													A							A												C					
Civil Defense													Co				Co	Co																			
Environmental Control	Co							B					Co																							C	
Fire Protection												A											C			A			A		B						
Forestry													A							A					A							A	A				
Horticultural Tech.										A	B	A			A		Co	Co		A														B			
Noise Pollution																																					
Occup. Safety & Health																																					
Petroleum Tech.											A						A																				
Public Health		C				C																									C						
Radiation Tech.	A	A					A	A		A		A															A	A									
Recreation					A					C	A								A								A	A	A		A	A		A			
Wastewater Tech.		C										C	Co	Co										Co				B									

KEY

A Associate Degree

C Certificate

B Both

Co Courses

Illinois Public Community Colleges

1. BELLEVILLE 62221
   Belleville Area College
   2500 Carlyle Road
   Phone: 618-235-2700

2. CANTON 61520
   Spoon River College
   102 East Elm
   Phone: 309-647-4645

3. CARTERVILLE 62918
   John A. Logan College
   Phone: 618-985-3741

4. CENTRALIA 62801
   Kaskaskia College
   Shattuc Road
   Phone: 618-532-1981

5. CHAMPAIGN 61820
   Parkland College
   2 Main Street
   Phone: 217-384-2200

6. CHICAGO 60601
   City Colleges of Chicago
   180 North Michigan Avenue
   Phone: 312-269-8000

   Kennedy-King College
   6800 South Wentworth
   Chicago 60621
   Phone: 312-962-3200

   Loop College
   64 East Lake Street
   Chicago 60601
   Phone: 312-269-8000

   Malcolm X College
   1900 West Van Buren
   Chicago 60612
   Phone: 312-942-3000

   Mayfair College
   4626 North Knox Avenue
   Chicago 60630
   Phone: 312-286-1323

Olive-Harvey College
10001 South Woodlawn
Chicago 60628
Phone: 312-568-3700

Southwest College
7500 South Pulaski Road
Chicago 60652
Phone: 312-735-3000

Wilbur Wright College
3400 North Austin Avenue
Chicago 60634
Phone: 312-777-7900

7. CHICAGO HEIGHTS 60411
Prairie State College
197th and Halsted Streets
Phone: 312-756-3110

8. CICERO 60650
Morton College
2500 South Austin Boulevard
Phone: 312-656-2300

9. CRYSTAL LAKE 60014
McHenry County College
6200 Northwest Highway, Box 415
Phone: 815-459-6800

10. DANVILLE 61832
Danville Community College
2000 East Main Street
Phone: 217-443-1811

11. DECATUR 62523
Community College of Decatur
100 North Water Street
Phone: 217-422-8387

12. DIXON 61021
Sauk Valley College
Route #1
Phone: 815-288-5511

13. EAST PEORIA 61611
Illinois Central College
P.O. Box 2400
Phone: 309-694-5011

14. EAST ST. LOUIS 62201
State Community College of East St. Louis
417 Missouri Avenue
Phone: 618-875-9100

15. ELGIN 60120
Elgin Community College
1700 Spartan Drive
Phone: 312-697-1000

16. FREEPORT 61032
Highland Community College
Pearl City Road
Phone: 815-233-6121

17. GALESBURG 61401
Carl Sandburg College
P.O. Box 1407
Phone: 309-343-6101

18. GLEN ELLYN 60137
College of DuPage
Lambert Road & 22nd Street
Phone: 312-858-2800

19. GODFREY 62035
Lewis & Clark Community College
Godfrey Road
Phone: 618-466-3411

20. GRAYSLAKE 60030
College of Lake County
19351 West Washington Street
Phone: 312-223-8193

21. HARRISBURG 62946
Southeastern Illinois College
Rural Route #4
Phone: 618-252-4411

22. INA 62846
Rend Lake College
R.F.D. #1
Phone: 618-437-5321

23. JOLIET 60436
Joliet Community College
1216 Houbolt Avenue
Phone: 815-729-9020

24. KANKAKEE 60901
Kankakee Community College
Box 888
Phone: 815-933-9311

25. MATTOON 61938
Lakeland College
Phone: 217-235-3131

26. MOLINE 61265
Black Hawk College
6600 - 34th Avenue
Phone: 309-755-1311

Black Hawk College East
P.O. Box 489
Kewanee 61443
Phone: 309-853-3381

27. MORTON GROVE 60053
Oakton Community College
7900 North Nagle Avenue
Phone: 312-967-5120

28. OGLESBY 61348
Illinois Valley Community College
Rural Route #1
Phone: 815-224-6011

29. OLNEY 62450
Illinois Eastern Community Colleges
233 East Chestnut Street
Phone: 618-393-2982

Wabash Valley College
2200 College Drive
Mt. Carmel 62863
Phone: 618-262-8641

Olney Central College
305 North West Street
Olney 62450
Phone: 618-395-4351

Lincoln Trail College
Rural Route #1
Robinson 62454
Phone: 618-544-8657

30. PALATINE 60067
William Rainey Harper College
Algonquin & Roselle Roads
Phone: 312-359-4200

31. PALOS HILLS 60465
Moraine Valley Community College
10900 South 88th Avenue
Phone: 312-974-4300

32. RIVER GROVE 60171
Triton College
2000 5th Avenue
Phone: 312-456-0300

33. ROCKFORD 61101
Rock Valley College
3301 North Mulford Road
Phone: 815-226-2600

34. SOUTH HOLLAND 60473
Thorton Community College
50 West 162nd Street
Phone: 312-596-2000

35. SPRINGFIELD 62703
Lincoln Land Community College
3865 South 6th Street
Phone: 217-529-6661

36. SUGAR GROVE 60554
Waubonsee Community College
Route 47 at Harter Road
Phone: 312-466-4811

37. ULLIN 62992
Shawnee Community College
Route #1
Phone: 618-634-2242

II The Area Vocational Centers

The 24 Area Vocational Centers offer courses that frequently include training in the skills very closely related to those identified with environmental occupations. For this reason, the following programs have been included:

1. Agriculture Occupations
2. Air Conditioning and Refrigeration
3. Building Trades
4. Conservation and Forestry
5. Drafting
6. Food Service
7. Health Occupations
8. Horticulture
9. Recreation

The data used to formulate the Environmental Curricula Inventory Chart of Illinois Area Vocational Centers was derived from March, 1973, program listings, from the files of the Division of Vocational and Technical Education.

For further information on any programs contact the specific Area Vocational Center listed following the chart.

AREA VOCATIONAL CENTERS

ENVIRONMENTAL CURRICULA INVENTORY

	Bloomington	Bourbonnais	Chicago	Collinsville	Decatur	East Moline	Elizabeth	Galesburg	LaSalle	Lawrenceville	Lincoln	Macomb	Marion	Maple Park	Morris	Mt. Vernon	Pekin	Pontiac	Red Bud	Rockford	Springfield	Sterling	Vandalia	Waukegan
Ag. Occupations								X					X		X		X	X				X		X
Air Cond./Refrig.				X		X																		
Building Trades		X				X	X	X	X		X		X		X	X	X	X			X		X	X
Cons. & Forestry							X					X	X	X	X		X							
Drafting	X	X		X	X	X	X	X	X	X		X		X		X			X	X	X			
Food Service	X	X		X	X				X		X	X		X				X		X			X	
Health Occ.	X	X		X		X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X
Horticulture				X			X													X				
Recreation							X																	

Operational Area Secondary Vocational Centers

1. BLOOMINGTON 61701
   Bloomington Area Vocational Center
   504 E. Jefferson Street
   Phone: 309-828-5201

2. BOURBONNAIS 60914
   Kankakee Area Career Center
   Rural Route #2, Bourbonnais
   Phone: 815-939-4971

3. CHICAGO 60624
   George Westinghouse Area Vocational Center
   3301 W. Franklin Boulevard

4. COLLINSVILLE 62234
   Collinsville Area Vocational Center
   201 W. Clay Street
   Phone: 618-345-5350

5. DECATUR 62523
   Decatur Area Vocational Center
   300 E. Eldorado Street
   Phone: 217-424-3070

6. EAST MOLINE 61244
   United Township Area Vocational Center
   1420 18th Avenue
   Phone: 309-755-2171

7. ELIZABETH 61028
   Jo Daviess-Carroll County Area Vocational Center
   Phone: 815-858-2203

8. GALESBURG 61401
   Galesburg Area Vocational Center
   1135 W. Fremont Street
   Phone: 309-343-4146

9. LASALLE 61301
   LaSalle-Peru Area Vocational Center
   541 Chartres Street
   Phone: 815-223-2454

10. LAWRENCEVILLE 62439
    Ambraw Valley Area Vocational Center
    8th & Charles Streets
    Phone: 618-943-3612

11. LINCOLN 62656
    Lincolnland Area Vocational Center
    Primm Road
    Phone: 217-732-4131

12. MACOMB 61455
West Central Illinois Area Vocational Center
1124 E. Adams Street
Phone: 309-837-2331

13. MAPLE PARK 60151
Mid-Valley Area Vocational Center
Rural Route #2
Phone: 312-365-6468

14. MARION 62959
Marion Area Vocational Center
1410 W. Hendrickson Street
Phone: 618-993-8196

15. MORRIS 60450
Grundy County Area Vocational Center
1000 Union Street
Phone: 815-942-4390

16. MT. VERNON 62684
Mt. Vernon Area Vocational Center
7th & Casey Avenue
Phone: 618-244-3700

17. PEKIN 61554
Pekin Area Vocational Center
Capitol Street
Phone: 309-347-4101

18. PONTIAC 61764
Livingston Area Vocational Center
1101 Indiana Avenue
Phone: 815-844-6113

19. RED BUD 62278
Beck Area Vocational Center
Rural Route #2
Phone: 618-473-2222

20. ROCKFORD 61101
Rockford Area Vocational Center
521 Samuelson Road
Phone: 815-874-6321

21. SPRINGFIELD 62704
Springfield Area Vocational Center
1101 S. 15th Street
Phone: 217-525-3188

22. STERLING 61081
Whiteside Area Vocational Center
1608 Fourth Avenue
Phone: 815-625-6800

23. VANDALIA 62471
Okaw Area Vocational Center
North 8th Street
Phone: 618-283-1395

24. WAUKEGAN 60085
Waukegan Area Vocational Center
1011 W. Washington Avenue
Phone: 312-336-3100

Operating Centers Planning New Facilities

Pekin
Red Bud
Springfield
Waukegan

Secondary Area Vocational Centers Approved (Phase I) Proposed

Benld
Carmi
Crestwood
Freeport
Joliet
Peoria
Ullim
Watseka

Secondary Area Vocational Centers Approved (Phase II) Designated

Alton
Danville
Quincy
Sandwich
Wheaton

III Other Environmental Career Programs

Many other training programs are available in Illinois or to residents of Illinois. Although it is recognized that this listing is in no way exhaustive, it provides examples of a wide variety of environmental occupation training programs.

Air Pollution

Illinois Environmental Protection Agency
Division of Air Pollution Control
200 West Washington Street
Springfield, Illinois 62706

Training is available, predominantly but not exclusively in-service, in air pollution control monitoring and performance measurement.

U.S. Environmental Protection Agency
Office of Air Programs
The National Environmental Research Center
Research Triangle Park, North Carolina 27711

Scheduled courses, three days to two weeks duration, in various aspects of air pollution monitoring and control. Write for current catalog.

Auto Emissions Control

Richard E. Johnson, Director
Chicago State University
68th and Stewart
Chicago, Illinois

Emission controls program for upgrading of auto mechanics, including newer technology designed to meet legislative standards.

Environmental Health

Bureau of Health Education
Illinois Department of Public Health
505 State Office Building
Springfield, Illinois 62706

A variety of special interest short courses and seminars, including those related to environmental health. Write for current schedule.

Center for Allied Health Professions
Illinois State University
Normal, Illinois 61761

Programs in Environmental Health, Medical Technology, Medical Records Administration, and Medical Dietetics. Write for descriptive brochure.

Health Careers Council of Illinois
410 N. Michigan Avenue
Chicago, Illinois 60611

Over 200 different occupations, with programs varying from a few months to several years. Write for brochure "Pathways to Health Careers."

Medical Laboratory Careers

Registry of Medical Technologists (ASCP)
2100 West Harrison Street
Chicago, Illinois 60612

Careers requiring less than four years of training include:

Certified Laboratory Assistant (CLA)
Medical Laboratory Technician (MLT)
Cytotechnologist (CT)
Histologic Technician (HT)

For information on schools and hospitals in Illinois offering these programs write Illinois Health Careers Council (above) for Health Careers Pathway Series 4B, "Careers in the Medical Laboratory."

Public Health Nursing

Illinois Committee on Nursing Careers
6 N. Michigan Avenue
Chicago, Illinois 60602

Chicago Council on Community Nursing
8 South Michigan Avenue
Chicago, Illinois 60603

Careers requiring less than four years of training include:

Nurses Aide (NA)
Licensed Practical Nurse (LPN)
Registered Nurse (RN)

For information on hospitals and schools in Illinois offering these programs write Illinois Health Careers Council (above) for Health Careers Pathway Series Leaflets 6A and 6B, "Nursing"and "Practical Nursing Education."

Radiologic Technology

The American Society of Radiologic Technologists
Suite 620
645 N. Michigan Avenue
Chicago, Illinois 60611

Formerly referred to as X-Ray Technology, two speciality fields have emerged: Radiation Therapy Technology and Nuclear Medicine Technology. For information on hospitals and schools in Illinois offering these programs write Illinois Health Careers Council (above) for Health Careers Pathway Series Leaflet 13, "Radiologic Technology."

Land Pollution

Division of Land Pollution Control
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62706

Subdivisions include Standards, Surveillance, Enforcement Services, Performance Measurement, and Operator Certification Section. Write for information on training programs.

Noise Pollution

B and K Instruments, Inc.
5111 West 164th Street
Cleveland, Ohio 44142

A seminar program in Cleveland available to Illinois residents. 4-day seminars on human acoustics, industrial noise, microphone and accelerometers, and acoustical materials and structures.

Chicago Hearing Society
30 West Washington Street
Chicago, Illinois 60602

Offers industrial firms in the Chicago metropolitan area short courses and training for safety personnel in administering and recording tests, calibration of instruments, and use of protective devices.

Dr. J. Curtis Tannahill
Department of Speech Pathology and Audiology
Illinois State University
Normal, Illinois 61761

Three day workshops, offered on demand.

Illinois Environmental Protection Agency
Division of Noise Pollution Control
4500 South Sixth Street
Springfield, Illinois 62706

Subdivisions include Standards, Surveillance, and Enforcement Services Section. Write for information on training programs.

Nuclear Energy Technology

Atomic Energy Instrument Maintenance Program
DeVry Institute of Technology
Bell and Howell Schools
4141 Belmont Avenue
Chicago, Illinois 60641

A 2-year associate degree program which provides the skills to qualify the participant to keep control equipment running in automated or semi-automated plants.

Introduction to Nucleonics

A 1-semester high school course featuring the detection and identification of radiation, the effects of radiation on living and non-living materials, protection from radiation, radiation physics, and career opportunities in nucleonics. For further information contact:

William Phelps, Chairman
Science Department
Crystal Lake Community High School
Crystal Lake, Illinois 60014

Arthur Baker, Chairman
Science Department
Cary-Grove Community HS
Cary, Illinois 60013

Radiation Monitoring

U.S. Atomic Energy Commission
Division of Technical Information
P.O. Box 62
Oak Ridge, Tennessee 37830

A programmed instruction book on radiation monitoring, designed to provide students with sufficient knowledge of the fundamentals of the subject to enable them to perform radiation monitoring duties under appropriate supervision.

Occupational Safety and Health

National Institute for Occupational Safety and Health (NIOSH)
Post Office Building
Room 506
Cincinnati, Ohio 45202

Short courses available to Illinois residents, "Introduction to Occupational Safety and Health." Write for current schedule.

OSHA Training Institute (U.S. Department of Labor)
Occupational Safety and Health Administration
10600 West Higgens Road
Rosemont, Illinois 60018

A 4-week initial course and other 1 and 2 week supplementary courses including Radiological Health Hazards, and special interest courses for construction, maritime, and other occupations. Open on a space-available basis to State employees and personnel from the private sector. Write for current schedule.

Pesticide Technology

Office of Pesticide Programs
U.S. Environmental Protection Agency
4770 Buford Highway
Chamblee, Georgia 30341

Write for information on training programs.

Safety

National Safety Council
Safety Training Institute
425 North Michigan Avenue
Chicago, Illinois 60611

1-week courses at Chicago National Safety Council headquarters, open by preregistration. Write for current catalog and schedule.

Solid Waste Management

Office of Solid Waste Management
U.S. Environmental Protection Agency
Cincinnati, Ohio 45268

2 and 3 day certificate courses in the Elements of Solid Waste Management and Collection, and Principles of Sanitary Landfill. Write for current catalog and schedule.

Water and Wastewater Technology

Division of Public Water Supplies
Illinois Environmental Protection Agency
4500 South Sixth Street
Springfield, Illinois 62706

Subdivisions include Standards, Surveillance, Enforcement, Permit, Performance Measurement, and Operator Certification Sections. Write for information on training programs.

Division of Water Pollution Control
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62706

Subdivisions include Standards, Surveillance, Enforcement, Permit, Performance Measurement, and Operator Certification Sections. Training programs are offered in cooperation with Illinois Community Colleges, and other educational institutions. Write for more information on training programs.

Office of Water Programs
U.S. Environmental Protection Agency
Robert A. Taft Sanitary Engineering Center
Cincinnati, Ohio 45268

3 day to 2 week courses in the chemical and biological analysis and treatment of water and wastewater, and environmental statistics. Write for current catalog, "Education and Training Programs, July 1973 to June 1974."

APPENDIX I

MEMBERSHIP

The State-Wide Task Force for Occupations Relating To The Environment

Ernest C. Bennett, P.E.
Operator Certification Section
Illinois Environmental Protection Agency

Dale E. Birkenholz, Ph.D.
Professor of Ecology
Illinois State University

Ben Boyd, M.P.H.
Supervising Sanitarian
McLean Department of Public Health

J. Gary Erisman, Ph.D.
Professor of Industrial Technology (Occupational Safety)
Illinois State University

Connie Floyd
Manpower Development Specialist
U.S. Environmental Protection Agency

G.W. Grawey, M.D.
Medical Director
Caterpillar Tractor Company

Elizabeth Guyer
Public Information Officer
Illinois Department of Conservation

Louis W. Hesse
Executive Vice President
Central Illinois Industrial Association

Dorothy Lawson
Director, Elementary Curriculum Development Project
Eastern Illinois University

James L. McBeen, Jr., Ph.D.
Chairman, Department of Agriculture
Illinois State University

Timothy James McMahon, M.S.
Field Representative
U.S. Brewers Association

Robert S. Nelson, Ph.D.
Professor of Geology
Illinois State University

Robert G. Price, Ph.D.
Assistant Project Director, Environmental Manpower Assessment
Southern Illinois University at Carbondale

Verdun Randolph, P.E., M.P.H.
Chief Engineer, Bureau of Environmental Health
Illinois Department of Public Health

William R. Retzer
Supervising Industrial Hygienist
Caterpillar Tractor Company

Robert Sampson, Ph.D.
Director, Conservation and Environmental Education Unit
Office of the Superintendent of Public Instruction

Wayne H. Schimpff, Ph.D.
Environmental Education Program Director
Open Lands Project, Chicago

Lindy W. Solon, Ph.D.
Professor of Physical Sciences
Project Director, Environmental Occupations
Chicago State University

Thomas Stitt, Ph.D.
Professor of Agriculture Education
Project Director, Environmental Occupations
Southern Illinois University at Carbondale

Leroy Stratton, P.E., M.S.P.H.
Assistant Chief Engineer
Illinois Department of Public Health

Nathan Willens
Supervisor, Industrial Hygiene Unit
Illinois Department of Labor

Arthur H. Wolff, D.V.M.
Director of Environmental Health Science
Graduate School of Public Health
University of Illinois Medical Center Campus

David Yaseen, Ph.D.
Director of Curriculum Development
Office of the Superintendent of Public Instruction

OTHER PARTICIPANTS:

H. Robert Hewlett
Program Officer
Division of Vocational and Technical Education
U.S. Office of Education, Region V

APPENDIX II

PROJECT STAFF

The State-Wide Task Force For Occupations Relating To The Environment

Alvin R. Jacobson, Ph.D., Project Director and Administrator
Director and Professor of Environmental Health
Illinois State University

Jeanne Budig, M.S.
Project Assistant Director
Division of Environmental Health
Illinois State University

Robert A. Aherin, M.S.
Project Assistant
Illinois State University

Rebecca Quast
Staff Secretary
Illinois State University

Richard Hofstrand, Ph.D.
Head Consultant
Professional and Curriculum Development Unit
Division of Vocational and Technical Education

Lonnie Hart, M.Ed.
Assistant Coordinator
Professional and Curriculum Development Unit
Division of Vocational and Technical Education

APPENDIX III

BIBLIOGRAPHY

The materials found to be most useful in this study are included in an annotated bibliography.

Career Education

1. Hoyt, Kenneth B., and others. Career Education: What It Is and How To Do It. Salt Lake City: Olympus, 1972.

This paperback discusses the key concepts of career education, the need for career education, and appropriate strategies for implementation by a school system interested in the concept.

A shorter version of the same document, Career Education: A Handbook for Implementation, is available from the Superintendent of Documents, U.S. Government Printing Office. Washington, D.C.

2. Olson, Kenneth C., Project Director. Career Education in the Environment: A Handbook. Salt Lake City: Olympus, 1972.

A comprehensive listing and job descriptions of the environmentally-related occupations, with entry level requirements ranging to the Ph.D. level. Suggested secondary environmental education curricula are given, as well as a comprehensive bibliography of publications, visual aides, and addresses for additional resource materials. Available from the Superintendent of Documents, U.S. Government Printing Office.

3. Taylor, Robert E., Ed. Career Education: Perspective and Promise. Merrill: Columbus, Ohio. 1972.

This paperback is part of the Merrill Series in Career Programs and features a collection of articles discussing philosophy, curriculum, and model comprehensive programs in Oregon, Missippi, and Kentucky.

Environmental Occupations

4. Arnold, Walter M., ed. Career Opportunities for Technicians and Specialists. Ferguson: Chicago. 1969-1972.

A 5-volume reference series giving detailed information about the career opportunities for the 2-year college graduate, including job descriptions, educational requirements, entry level jobs and how to get them, advancement possibilities, working conditions, earnings, and benefits. $6.95 each.

Engineering Technicians

Agricultural, Forestry, and Oceanographic Technicians

Marketing, Business, and Office Specialists

Health Technicians

Community Service and Related Specialists

5. _____. "Career Briefs." Careers, Inc., Largo, Florida. 1970-1973.

A series of leaflets dealing with almost every occupational area with emphasis on working conditions, personal qualifications, training requirements, training opportunities, employment outlook, earning potential, and suggested high school program. Approximately 25¢ each.

6. _____, ed. Concise Handbook of Occupations. Ferguson: Chicago. 1972.

Specific and detailed information is provided on over 300 jobs varying in educational requirements from an 8th grade certificate to a Ph.D. degree. 320 pages.

7. _____. "Pathways to Health Careers" pamphlet series. Health Careers Council of Illinois, 410 N. Michigan Avenue, Chicago. 1968-1973.

General information series on opportunities in the health-related fields including occupation titles, educational requirements, and training facilities for approximately 200 careers listed under 20 health career areas.

8. Hopke, William E., ed. The Encyclopedia of Careers and Vocational Guidance. Ferguson: Chicago. 1972.

This 2-volume guide to occupations offers a single source for complete up-to-date career information. 1,536 pages.

9. U.S. Department of Health, Education, and Welfare. An Inventory of Environmental Management Occupational Descriptions. Serendipity, Inc.: Eastern Operations Division, Arlington, Virginia. 1972.

This publication provides a comprehensive set of titles and descriptions for environmental management occupations.

10. U.S. Department of Health, Education, and Welfare. New Careers For the Subprofessional. U.S. Government Printing Office. 1970.

Provides an introduction to the basic issues in the development and utilization of subprofessionals, particularly in new career programs. 35¢.

11. U.S. Environmental Protection Agency. Dictionary of Water and Water Pollution Control Occupations. Office of Water Programs: Washington, D.C. 1972.

Includes official job titles and descriptions, minimum entrance requirements, and opportunities for advancement.

12. U.S. Environmental Protection Agency. Education and Training Programs. Office of Water Programs: Washington, D.C. FY 1973.

Course descriptions and scheduling of training programs July, 1972 to June,1973.

13. U.S. Environmental Protection Agency. Guide Class Specifications for Air Pollution Control Positions in State and Local Programs. Office of Air Programs, Washington, D.C. July, 1972.

Includes official job titles and descriptions, minimum entrance requirements, and opportunities for advancement.

14. U.S. Department of Labor. Dictionary of Occupational Titles, Vol. I and Vol. II. U.S. Government Printing Office: 1965.

The original comprehensive listing of occupational titles and job descriptions; source book for D.O.T. numbering system. $6.75 each.

15. U.S. Department of Labor. Occupational Outlook Handbook, 1972-1973 Edition. Bureau of Labor Statistics, U.S. Government Printing Office. 1973.

A listing of approximately 800 occupations. The Handbook discusses the nature of work in different occupations, potential earnings, job prospects during the 1970's, and education and training requirements. $6.25.

16. U.S. Department of Labor. Employment Outlook. Bureau of Labor Statistics, U.S. Government Printing Office. 1972-1973 Editions.

A reprint series from the Occupational Handbook:

"Conservation Occupations"	Bulletin 1650-31.
"Life Science Occupations"	Bulletin 1650-25.
"Physical Scientist"	Bulletin 1650-26.
"Sanitarians"	Bulletin 1650-21.
"Technicians"	Bulletin 1650-27.
"WasteWater Treatment Plant Operator"	Bulletin 1650-104.

Community College Programs

17. College Entrance Examination Board. The New York Times Guide to Continuing Education in America. Quadrangle Books, Inc., New York. 1972.

A comprehensive description of opportunities in continuing education at accredited educational institutions. Geographical listing.

18. _____, ed. Ferguson Guide to Two-Year College Programs for Technicians and Specialists. Ferguson: Chicago. 1971.

Includes geographical listing of 130 occupational programs beyond high school, the course content and where they are offered. Incorporates information from 4 of the 5 Career Opportunities for Technicians and Specialists series plus Engineering Technology programs. $6.95.

19. Graham, William R., ed. Barron's Guide to the Two-Year Colleges, Vol. I. Barron's Educational Series, Inc., Woodbury, New York. 1972.

Provides comprehensive information by geographical location of all the two-year college programs in the United States. $3.95.

20. _____. Career Programs in Illinois Public Junior Colleges. Illinois Junior College Board. Springfield, Illinois, 1973.

Provides program director, address, and list of all career programs operating during the 1972-1973 school year at Illinois Community Colleges.

21. _____. Occupational Education: Illinois Public Community Colleges and Technical Institutes: 1972-1973 Directory. Division of Vocational and Technical Education: Springfield. 1973.

Provides an index to career programs by occupational field: Agriculture, Business and Commerce, Health, Industrial, Public Service Related. Part Two lists the names of the schools alphabetically, their location, the career programs which they offer and the type of degree available upon completion of the program. Bulletin No. 26-972.

22. _____. Pamphlet Series, The School of Technical Careers. Southern Illinois University at Carbondale.

Pamphlet series describing two-year technical programs in the topics listed below. Write for individual brochures.

Architectural Technology
Construction Technology - Building
Construction Technology - Civil